Tempe Fire Department Policies and Procedures
Slice Pac
405.11
Rev 10-23-97

PURPOSE

The Arcair cutting system carried on our Ladder companies is used to cut through materials for extrication, forcible entry, and rescue.

PROCEDURE

The Slice Pac uses high heat that will melt most common materials. Full turnouts, including Nomex hood, welding gloves, and dark cutting torch goggles must be worn while operating.
Enclosed areas require SCBA because of smoke generation.

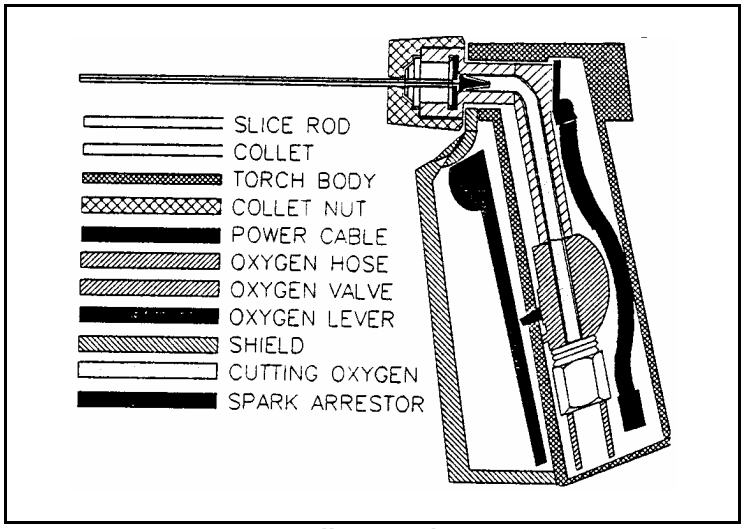
Components:

Oxygen bottle and spares.

Regulator.

Combination oxygen electric lines.

Torch handle: combination rod holder, positive electrode, oxygen control valve.



Slice Torch

Striker, negative electrode.

Storage battery and charging system.

Backpack for system.

Cutting rods, 22" length.

Welding gloves.

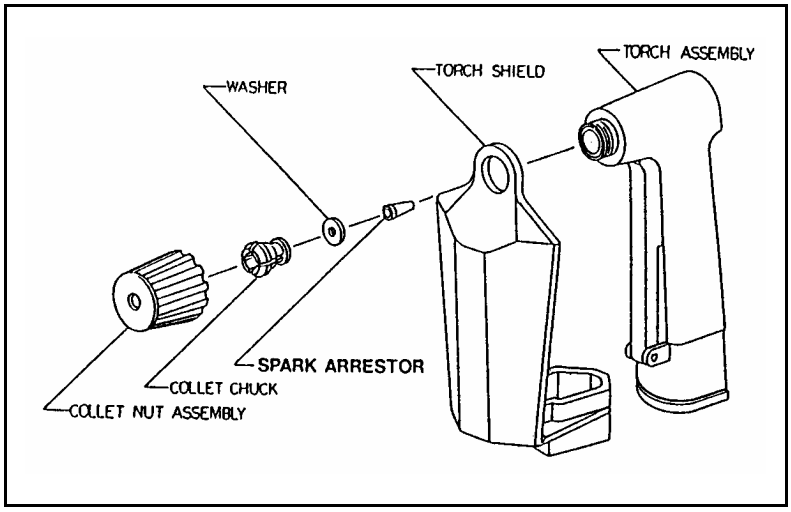
Welding goggles.

Extra collet nut, collet chuck, spark arrestor cones, and rubber washers.

Check out:

The battery selector switch should be left in the "charge" position while plugged into the apparatus' electrical system.

Move the switch to "test" and read the battery power on the gauge.



Spark Arrestor Inspection

Screw the brass collet nut off of the handle and inspect it and the collet chuck for damage.

Make sure the rubber washer is in place and in good condition.

Make sure the spark arrestor is in place and in good condition. (You may have to tap the handle on your palm to get the spark arrestor out.)

Reassemble the torch handle.

Check oxygen pressure only facing the gauge after the bottle is turned on.

Check rod supply.

Operation:

Mostly used to cut metal, the Slice Pac will cut stone, brick, and glass also. It uses a rolled hollow steel rod that is ignited by a spark and burns by passing oxygen through it at 80 psi.
The intense heat generated by the burning steel will melt the object being cut and the jet of oxygen will blow the molten material from the cut. There is a lot of molten material flying about during operation. Precautions need to be taken for personnel protection and fire control.

Don all protective gear, gloves, and goggles.

Turn on oxygen bottle and check pressure. Do not face the glass side of the gauge while turning on the oxygen, in case the glass would break. Regulator should be set at 80 psi.

Remove torch handle and striker from the side of back pack.

Place a rod in the hole of the collet nut of the handle. Firmly seat the rod against the washer and hand tighten the collet nut.

Move battery selector switch to "cut". Failure to do so may damage the battery system.

With gloves on, hold handle in one hand and striker in the other.

Depress the trigger on the handle. You will hear the oxygen flow. Drag the rod across the striker until the rod ignites. When the trigger is released, the oxygen flow and cutting process stops.

Hold the rod about 1/2" from the surface to be cut at a slight angle in the direction of cut. Once the cut is started, adjust the distance for the best cut.

Remember the rod burns fast. Don't hold the rod. Don't let the rod burn any closer to the collet nut than 5". The brass collet nut and chuck will burn also.

When finished burning a rod, release the trigger, remove the 5" portion, and put a fresh rod in the handle. Strike the rod and continue the cut.

When finished with the cut, inspect the collet nut, collet chuck, washer, and spark arrestor before stowing the Slice Pac.

Other Considerations:

Rods that are not completely burned and are 12" long can be saved for training and drills.

Oxygen bottles will last for about 10 rods. The extras should be handy for long cutting operations. We can't fill these bottles. They have to be sent out to a welding supply. A full bottle should be around 2000 psi.

The battery may strike as many as 20 rods before losing power, if it was fully charged. You can use jumper cables from a 12 volt system to keep the igniter working when the battery is discharged. Just pull the positive and negative battery connectors from the electrical system and attach to the appropriate jumper cable. Preferably use a staff car as the jumper process may damage the electronics of the fire apparatus.

Pierce cuts can be made in the center of an object. The "blow hole" effect from this type of cut will produce considerable molten splatter. Continue the torch operation until the rod is removed from the hole to keep from welding it in place. If it sticks, stop cutting and remove the rod from the torch handle and work it loose. If you can't get it loose, continue cut with another rod which will also cut the other one loose.

Safety Reminders:

- Wear full protective gear (SCBA depending on atmosphere).
- Have charged hoseline or extinguisher in place.
- The rod is consumed rapidly, be aware of length no less than 5".
- Do not hold the rod.
- Avoid shock by not touching electrical parts bare handed (striker, rod and torch tip)
- The rod tip is hot after the torch is out.
- Keep oil away from all oxygen connections. Do not handle with oil or grease on your hands.